

(12) **United States Patent**
Loos

(10) **Patent No.:** **US 11,185,661 B1**
(45) **Date of Patent:** **Nov. 30, 2021**

(54) **WEIGHTED BLANKET**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/740,370**

(22) Filed: **Jan. 10, 2020**

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Related U.S. Application Data

(60) Provisional application No. 62/791,019, filed on Jan. 10, 2019.

(57) **ABSTRACT**

(51) **Int. Cl.**
A61M 21/02 (2006.01)
A47G 9/02 (2006.01)
A61M 21/00 (2006.01)

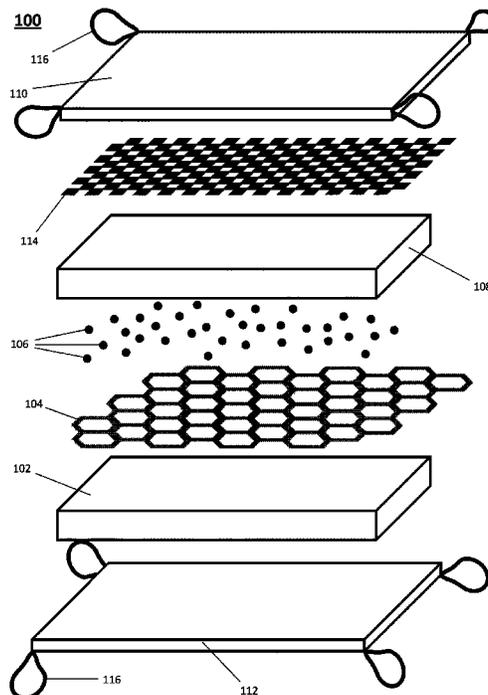
A weighted blanket, comprising: a lower layer of blanket material; a perforated layer having a plurality of similarly shaped and sized apertures, each aperture defining a cell, the perforated layer being disposed above the lower layer; a plurality of beads distributed over the lower layer; an upper layer of blanket material disposed above the lower layer of blanket material, such that the lower level and the upper level sandwich the perforated layer and the bead. The lower layer, the upper layer, and the perforated layer are sewn together in a sewing pattern that divides the weighted blanket into a plurality of substantially equal sections, such that beads in any of the sections are prevented from crossing into any other one of the sections.

(52) **U.S. Cl.**
CPC **A61M 21/02** (2013.01); **A47G 9/0223** (2013.01); **A61M 2021/0022** (2013.01)

(58) **Field of Classification Search**
CPC **A47G 9/0223**; **A61M 21/02**; **A61M 2021/0022**

See application file for complete search history.

16 Claims, 6 Drawing Sheets



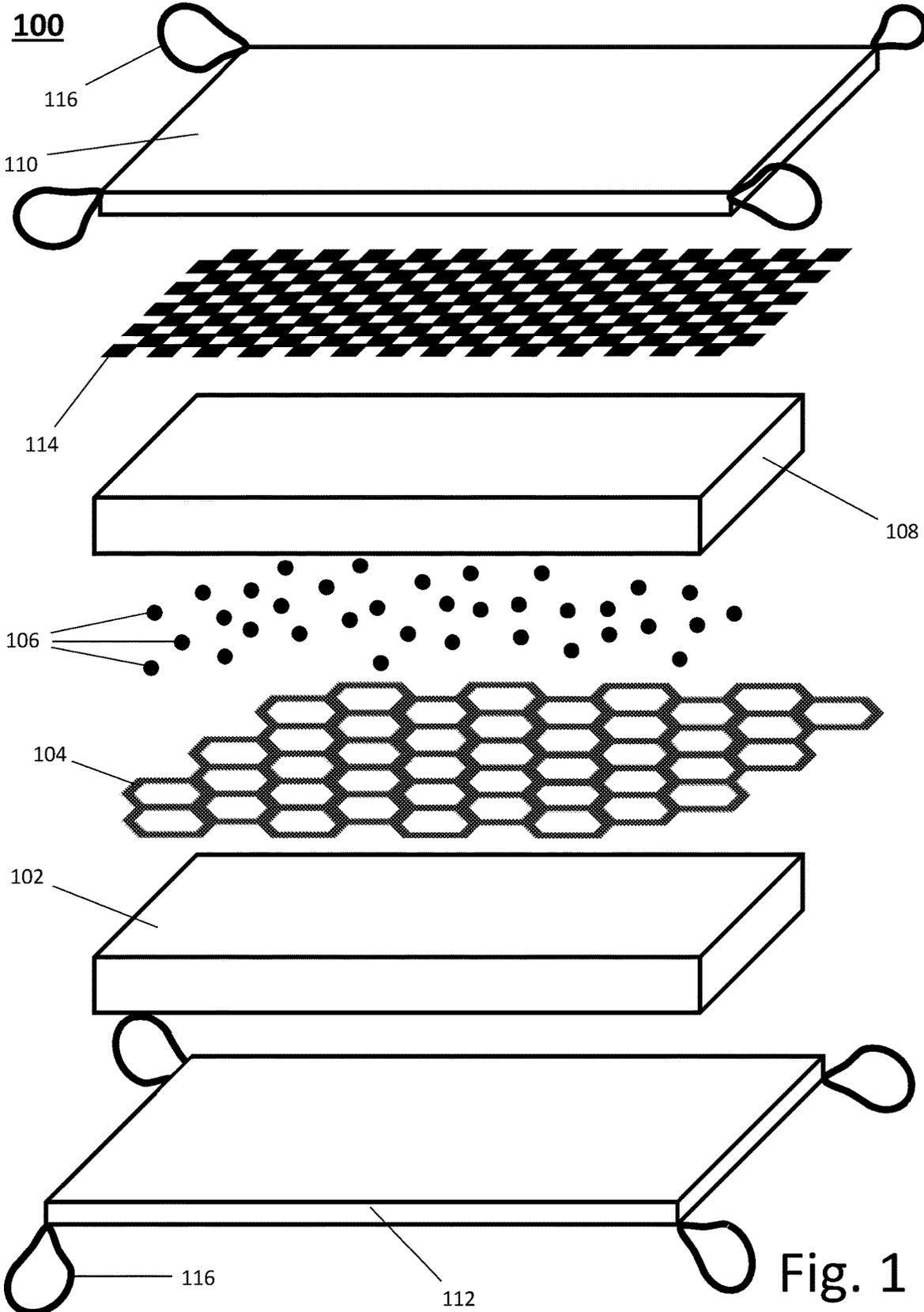


Fig. 1

104

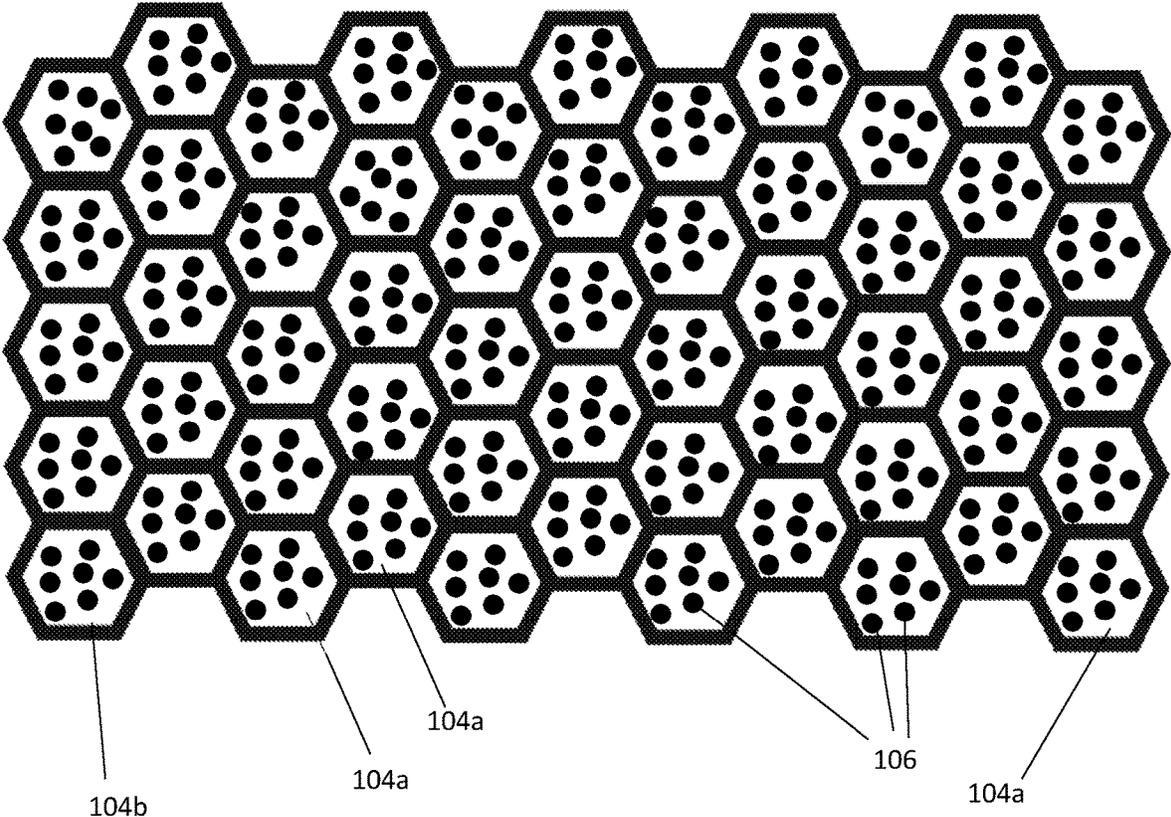


Fig. 2

100

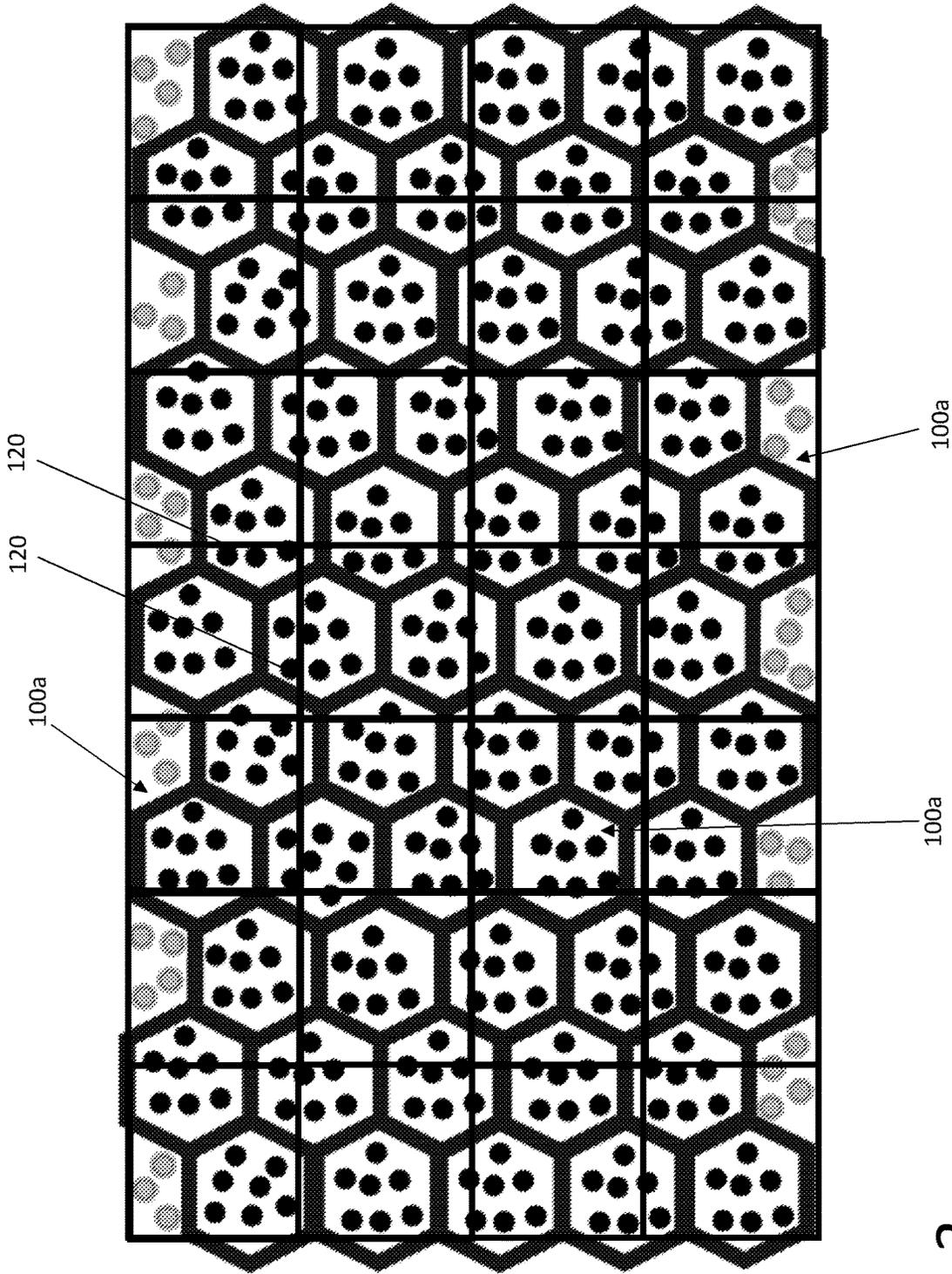


Fig. 3

114

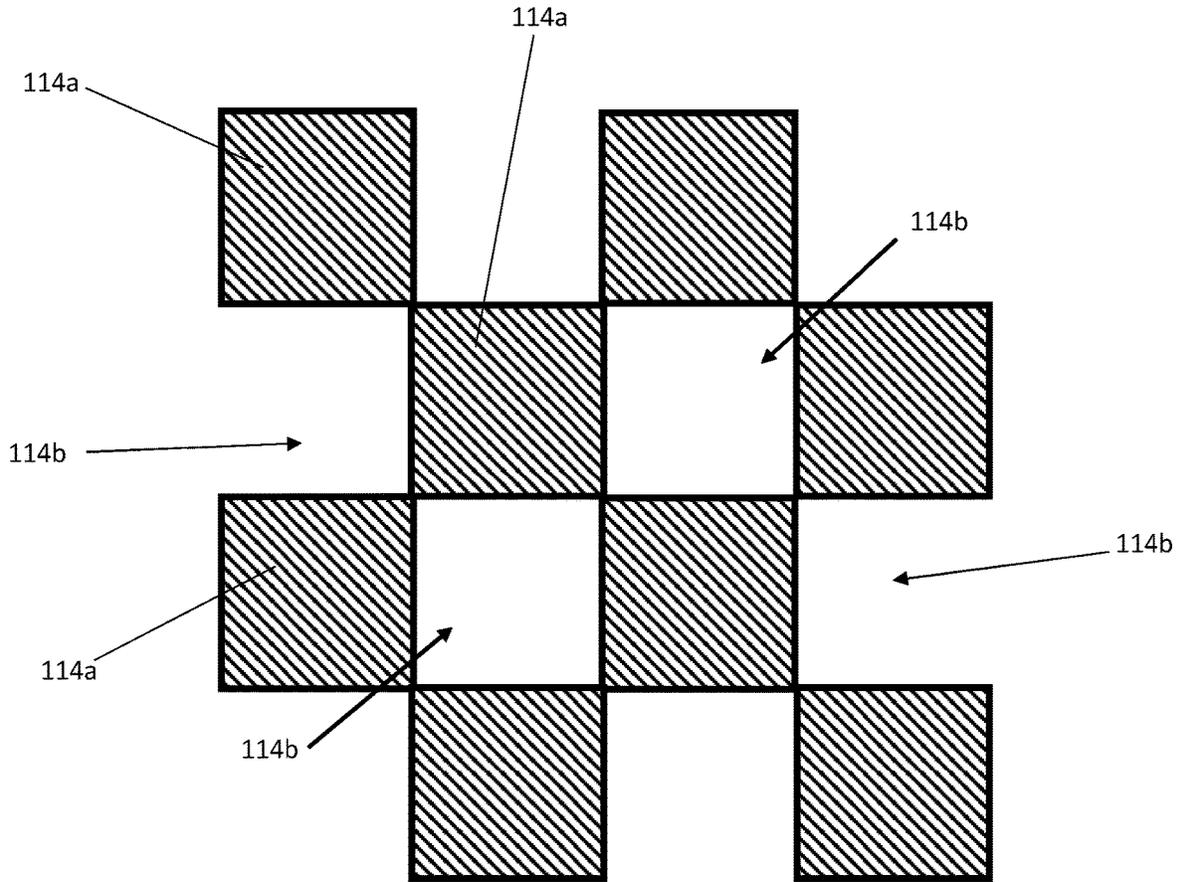


Fig. 4

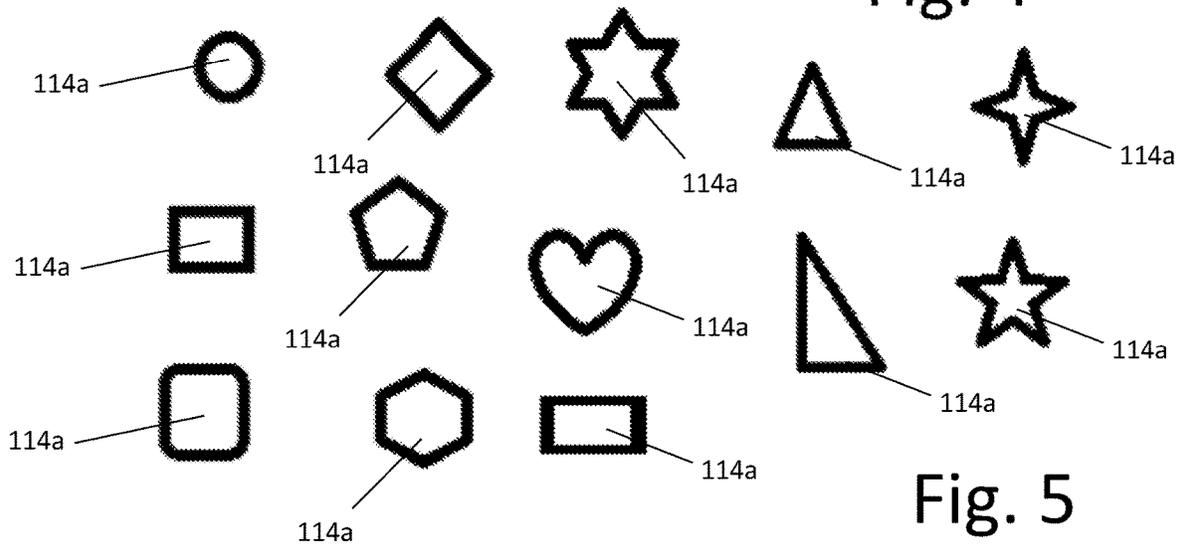


Fig. 5

600

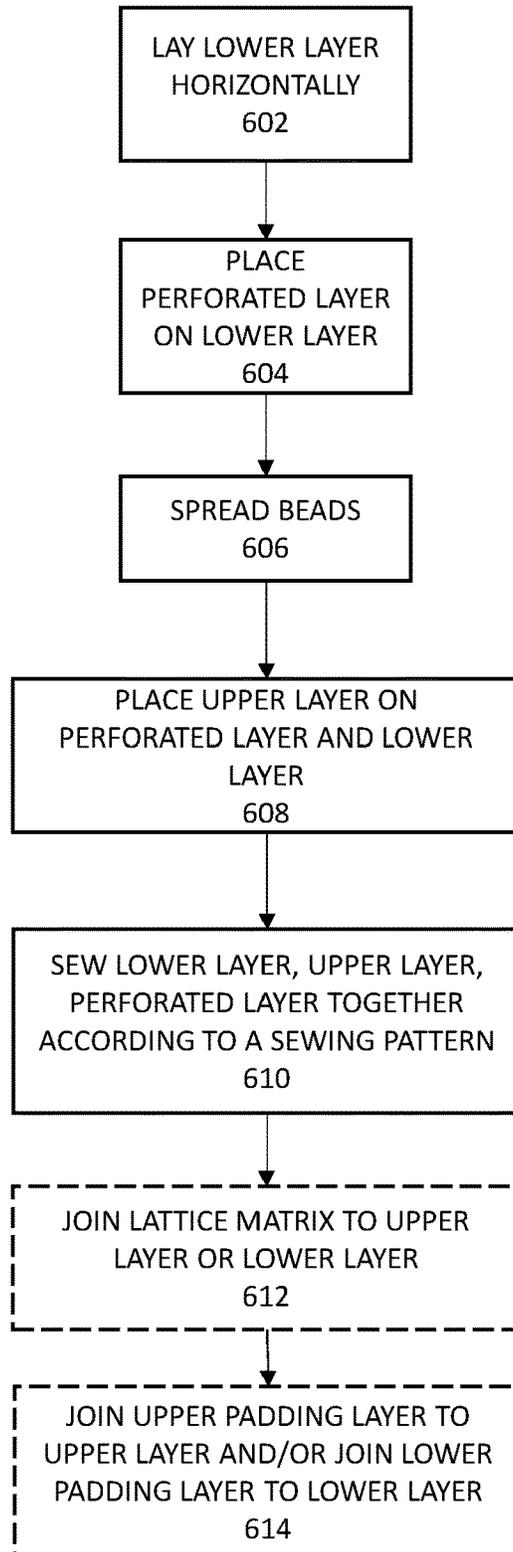


Fig. 6

700

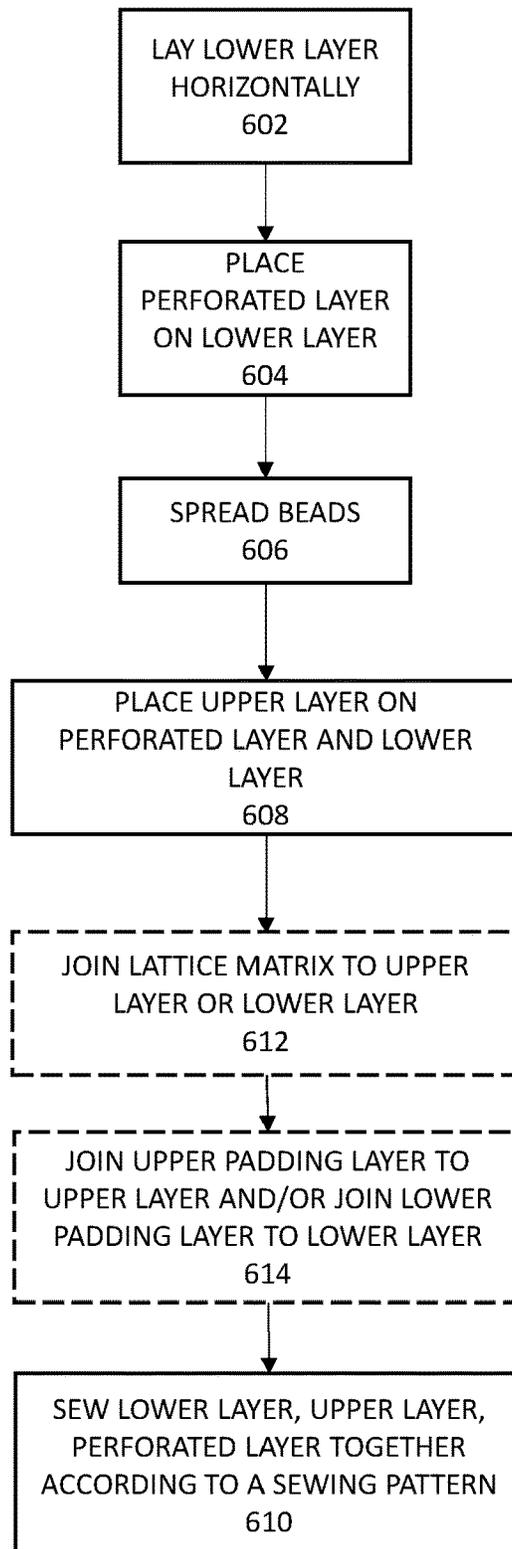


Fig. 7

WEIGHTED BLANKET**CROSS-REFERENCES TO RELATED APPLICATIONS**

This application claims priority from U.S. Provisional Application Ser. No. 62/791,019 filed on Jan. 10, 2019, which is hereby incorporated herein by reference in the respective in its entirety.

TECHNICAL FIELD

The present invention relates to a weighted blanket for deep pressure therapy purposes.

BACKGROUND OF THE INVENTION

There are various types of blankets on the market today. Yet, there are several unresolved issues with the structure and use of many blankets. Most blankets do not provide enough warmth due to their structure, lack of layers, or thin material. Further, a blanket is generally not very rigid and moves very easily off of a person's body or bed, decreasing the blanket's efficiency to provide warmth and heat.

In the art, some blankets are known to include micro beads within a sandwich of fiberfill to add to the weight of the blanket.

BRIEF SUMMARY OF EMBODIMENTS OF THE INVENTION

While the blanket with micro beads are indeed heavier, the beads fall to the lowest point of the blanket due to gravity, and pool therein. This pooling effect is undesirable, as the distribution of the weight of the blanket is altered during the blanket's use and becomes concentrated in one or more pockets. Thus, during use, even a weighted blanket is no longer homogeneously weighted over the user's body, decreasing the comfort provided by the blanket and not preventing the falling of the blanket while the user sleeps.

The present invention addresses these issues, by providing a novel weighted blanket and a method of manufacturing the weighted blanket. The weighted blanket of the present invention comprises several layers of blanket material, to increase the weight of the blanket. A perforated layer sandwiched between the layers of blanket material helps to hold beads in place and enables a substantially homogeneous distribution of weight throughout the blanket. In some embodiments, the blanket has an outer surface fully made out of cotton breathable fabric, amenable for human body temperature. The beads may be made of silica or lead-free glass, which are known to be non-toxic, hypoallergenic, and odorless. The layers of blanket material may be polyfill layers, which include polyester to prevent tears and leakage of the beads.

Therefore, an aspect of some embodiments of the present invention relates to a weighted blanket, comprising: a lower layer of blanket material; a perforated layer having a plurality of similarly shaped and sized apertures, each aperture defining a cell, the perforated layer being disposed above the lower layer; a plurality of beads distributed over the lower layer; an upper layer of blanket material disposed above the lower layer of blanket material, such that the lower level and the upper level sandwich the perforated layer and the beads; wherein the lower layer, the upper layer, and the perforated layer are sewn together in a sewing pattern that divides the weighted blanket into a plurality of substantially equal sections, such that beads in any of the sections are prevented from crossing into any other one of the sections; and wherein

prior to the sewing of the lower layer, the upper layer, and the perforated layer, the beads are distributed substantially uniformly over the lower layer of blanket material such that each cell contains substantially a same number of beads and the perforated layer prevents the beads from leaving the respective cell, thereby ensuring that once the lower layer, the upper layer, and the perforated layer are sewn together, each section contains substantially a same amount of beads, thereby ensuring a substantially uniform distribution of beads over the blanket.

The blanket may also have a lattice matrix disposed parallel to the layers of blanket material and joined to at least one of the layers of blanket material, the lattice matrix comprising a pattern of shaped holes alternating with similarly shaped and sized units of fabric, the fabric being at least semi-rigid, such that lattice matrix is configured to be flexible while retaining a shape of the blanket.

The blanket may also have at least one of: an upper padding layer disposed above the upper layer of blanket material, and a lower padding layer is disposed below the lower layer of blanket material.

The blanket may also have at least one tie loop joined to at least one edge of the upper padding layer or the lower padding layer and being configured to attach to an external structure.

The blanket may be as described above with the sections being rectangular or square.

In a variant of the blanket, the upper padding layer and/or the lower padding layer comprises preshrunk cotton fabric.

In another variant of the blanket, the lower layer of blanket material and/or the upper layer of blanket material comprises polyfill.

In a further variant of the blanket, the cells of the perforated layer are honeycomb shaped.

In still another variant of the blanket, the perforated layer comprises elastic fabric.

In a variant, a method for manufacturing a blanket comprises: providing a lower layer of blanket material as a foundation; laying the lower layer of blanket material horizontally; placing a perforated layer on the lower layer, the perforated layer having a plurality of similarly shaped and sized apertures, each aperture defining a cell, above the lower layer; spreading a plurality of beads substantially uniformly on a top of the lower layer with the cells above the lower blanket layer, such that each cell contains substantially a same amount of beads, the perforated layer preventing the beads from leaving the respective cells; placing an upper layer of blanket material on a top of the lower layer such that the lower layer and the upper layer sandwich the perforated layer and the beads; and sewing the lower layer, upper layer, and the perforated layer together according to a sewing pattern which divides the blanket into a plurality of substantially equal sections, such that each section contains substantially a same amount of beads and that the beads in any of the sections are prevented from crossing between sections, thereby maintaining a substantially uniform distribution of the beads over the blanket.

In a variant, the method further comprises joining a lattice matrix to at least one of the upper layer and the lower layer, such that the lattice matrix is disposed parallel to the upper layer and the lower layer, the lattice matrix having a pattern of a shaped holes alternating with similarly shaped and sized units of fabric, the fabric being at least semi-rigid, such that lattice matrix is configured to be flexible while retaining a shape of the blanket.

In another variant, the method comprises at least one of: joining an upper padding layer to a top of the upper layer of

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blanket material; and joining a lower padding layer to a bottom of the lower layer of blanket material.

In a further variant, the method comprises joining at least one tie loop to at least one edge of the upper padding layer or of the lower padding layer, the at least one tie loop being configured to attach to an external structure.

In yet another variant of the method, the substantially equal sections are square or rectangular.

In still a further variant of the method, the upper padding layer and/or the lower padding layer comprise preshrunk cotton fabric.

In a variant of the method, the lower layer of blanket material and/or the upper layer of blanket material comprise polyfill.

In another variant of the method, the cells of the perforated layer that are honeycomb shaped.

In a further variant of the method, the perforated layer comprises elastic fabric.

Other features and aspects of the invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the features in accordance with embodiments of the invention. The summary is not intended to limit the scope of the invention, which is defined solely by the claims attached hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention, in accordance with one or more various embodiments, is described in detail with reference to the following figures. The drawings are provided for purposes of illustration only and merely depict typical or example embodiments of the invention. These drawings are provided to facilitate the reader's understanding of the invention and shall not be considered limiting of the breadth, scope, or applicability of the invention. It should be noted that for clarity and ease of illustration these drawings are not necessarily made to scale.

Some of the figures included herein illustrate various embodiments of the invention from different viewing angles. Although the accompanying descriptive text may refer to such views as "top," "bottom" or "side" views, such references are merely descriptive and do not imply or require that the invention be implemented or used in a particular spatial orientation unless explicitly stated otherwise.

FIG. 1 is an exploded view of a weighted blanket, according to some embodiments of the present invention;

FIG. 2 is a top view of a perforated layer having a plurality of cells for holding beads, according to some embodiments of the present invention;

FIG. 3 is a top view of the blanket of the present invention, illustrating the division of the blanket into substantially equal sections, each of which contains a substantially equal number of beads;

FIG. 4 is a top view of the lattice matrix, illustrating shaped and sized units of fabric alternating with similarly shaped and sized holes, according to some embodiments of the present invention;

FIG. 5 illustrates different examples of shapes of the units of fabric;

FIG. 6 is a flowchart illustrating a method for manufacturing a weighted blanket, in which the lattice matrix and the padding layers are joined to the upper and/or lower layer of blanket material after the lower layer, upper layer, and perforated layer are sewn together, according to some embodiments of the present invention; and

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FIG. 7 is a flowchart illustrating a method for manufacturing a weighted blanket, in which the lattice matrix and the padding layers are joined to the upper and/or lower layer of blanket material before the lower layer, upper layer, and perforated layer are sewn together, according to some embodiments of the present invention.

The figures are not intended to be exhaustive or to limit the invention to the precise form disclosed. It should be understood that the invention can be practiced with modification and alteration, and that the invention be limited only by the claims and the equivalents thereof.

DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

From time-to-time, the present invention is described herein in terms of example environments. Description in terms of these environments is provided to allow the various features and embodiments of the invention to be portrayed in the context of an exemplary application. After reading this description, it will become apparent to one of ordinary skill in the art how the invention can be implemented in different and alternative environments.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as is commonly understood by one of ordinary skill in the art to which this invention belongs. All patents, applications, published applications and other publications referred to herein are incorporated by reference in their entirety. If a definition set forth in this section is contrary to or otherwise inconsistent with a definition set forth in applications, published applications and other publications that are herein incorporated by reference, the definition set forth in this document prevails over the definition that is incorporated herein by reference.

Referring now to the drawings, FIG. 1 is an exploded view of a weighted blanket **100**, according to some embodiments of the present invention.

The weighted blanket **100** comprises a lower layer **102** of blanket material, a perforated layer **104**, a plurality of beads **106**, and an upper layer **108**. The lower layer of **102** and the upper layer **108** are configured for sandwiching the perforated layer **104** and the beads **106**. The lower layer **102** and the upper layer **108** are made of compliant material, for the user's comfort. The lower layer **102** and the upper layer **108** do not allow the beads **106** to pass therethrough. In some embodiments of the present invention, at least one of the lower layer **102** and the upper later **108** includes polyester, such as polyfill, to prevent tears and leakage of the beads through the layer of blanket material.

The perforated layer **104** is joined to the top of the lower layer **102**, and has a plurality of similarly shaped and sized apertures **104a**, each aperture defining a cell. A plurality of beads **106** is distributed over the lower layer **102** on the perforated layer **104**. As will be explained further below, with reference to FIGS. 2 and 3, the perforated layer **104** helps distribute the beads **106** on the lower layer **102** in a uniform manner and maintain the uniform distribution until the lower layer **102**, perforated layer **104**, and upper layer **108** are sewn together.

The lower layer **102**, the upper layer **108**, and the perforated layer **104** are sewn together in a sewing pattern that divides the weighted blanket **100** into a plurality of substantially equal sections, such that beads **106** in any of the sections are prevented from crossing into any other one of the sections. Because the beads are homogeneously distributed over the lower layer **102**, prior to the sewing, the beads are still homogeneously distributed over the blanket **102**

after the sewing, such that each section of the blanket includes approximately the same number of beads.

In some embodiments of the present invention, an upper padding layer **110** is disposed above the upper layer **108** of blanket material, and a lower padding layer **112** is disposed below the lower layer **102** of blanket material. The padding layers may include soft materials to enhance the comfort of the user. The padding layers may include heat retaining material, to enhance the heat retaining properties of the blanket. A material that is both soft and heat retaining may be, for example, preshrunk cotton.

In a variant, at least one tie loop **116** is joined to at least one edge of the upper padding layer **110** or the lower padding layer **112**. The tie loop **116** is configured to attach to an external structure, such as a bed post, to retain the blanket **100** on the bed, even as a user sleeps and moves under the blanket **100**.

According to some embodiments of the present invention, the blanket **100** includes a lattice matrix **114** disposed parallel to the layers of blanket material (**102**, **108**) and joined to at least one of the layers of blanket material. The lattice matrix **114** includes a pattern of shaped holes alternating with similarly shaped and sized units of fabric, the fabric being at least semi-rigid, such that the lattice matrix **114** is configured to be flexible while retaining a shape of the blanket **100**.

FIG. 2 is a top view of the perforated layer **104** having a plurality of cells **104a** for holding beads **106**, according to some embodiments of the present invention.

As mentioned above, the perforated layer **104** includes cells **104a**. When the beads **106** are spread on the perforated layer over the top of the lower layer **102** of blanket material, each cell **104a** contains about the same number of beads. The divider material **104b** between the cells **104a** prevents the beads **106** from rolling from one cell to the other, while the lower layer **102** and the perforated layer **104** are disposed horizontally. This ensures that the same number of beads **106** is housed within each cell **104a** of the perforated layer **104**. Thus, the perforated layer helps maintain a substantially uniform distribution of beads **106** over the lower layer **102**.

The divider material **104b** may be any material compliant material that can be sewn therethrough. In some embodiments of the present invention, the divider material **104b** includes elastic fabric. The cells **104a** may have various shapes such as hexagon (honeycomb), square, circle, heart, or rectangle, as long as all of the cells **104a** have the same shape.

In some embodiments of the present invention, each cell is a hexagon having a side of 0.25-10 inches. The number of beads **106** contained in each cell depends on the size and weight of the beads and the desired weight distribution over the blanket. In a non-limiting example, each bead **106** is a sphere having a diameter of 0.1-50 millimeters and a mass of 0.01-50 grams. According to a non-limiting example, each hexagonal cell contains 5-5000 such beads. It should be noted that a level of error 25% is permitted in the distribution of the beads.

The beads may be made of silica or lead-free glass. In some embodiment of the present invention, the beads are non-toxic, hypoallergenic, and odorless.

FIG. 3 is a top view of the blanket **100** of the present invention, illustrating the division of the blanket **100** into substantially equal sections **100a**, each of which contains a substantially equal number of beads **106**.

The uniform distribution of beads **106** over the lower layer of blanket material is maintained by the perforated

layer **104** until the different units are sewn together. After the sewing occurs along the sewing lines **120**, and the blanket **100** is moved around, it is possible that beads **106** may leave the cells **104a**, as the blanket may be turned, or the divider material between cells may bend. However, because the beads were uniformly distributed over the lower before and the sewing and because the beads **106** cannot traverse the sewing lines **120** to move between different sections **100a** (which have substantially equal shape and surface area), the sections **100a** contain substantially the same amount of beads **106**. The sections **100a** may be square, rectangular, or any other shape.

In a non-limiting example, each section **100a** is a square having a side of 0.25-10 inches and contains 5-5000 beads having a diameter of 0.1-20.0 millimeters and a mass of 0.01-10.0 grams. In one embodiment, a level of error of 25% is acceptable in the distribution of the beads, such that the number of beads **106** in each section **100a** is the desired number plus or minus 25%.

FIG. 4 is a top view of the lattice matrix **114**, illustrating shaped and sized units of fabric **114a** alternating with similarly shaped and sized holes **114b**, according to some embodiments of the present invention. FIG. 5 illustrates different examples of shapes of the units of fabric **114a**.

The lattice matrix **114** is flexible in a finite number of directions, but resists bending outside those directions. For example, if the units of fabric **114a** and the holes **114b** are square, the lattice matrix **114** is flexible along the sides of the squares, but resists bending in a diagonal direction. This enables the lattice matrix **114** to retain its shape, thereby causing the blanket **100** to retain its shape, while maintaining a level of flexibility needed for comfort. It is important that the blanket **100** retains its shape to make sure that the beads **106** are uniformly spread over the user while the user is sleeping. Referring to FIG. 5, the units of fabric **114a** and the holes **114b** may have any kind of shape including but not limited to circle, triangle, heart, star, and hexagon.

FIG. 6 is a flowchart **600** illustrating a method for manufacturing a weighted blanket, in which the lattice matrix (described above) and the padding layers (described above) are joined to the upper and/or lower layer of blanket material (described above) after the lower layer, upper layer, and perforated layer (described above) are sewn together, according to some embodiments of the present invention.

At **602**, the lower layer of blanket material described above is laid horizontally. At **604**, the perforated layer described above is placed on top of the lower layer of blanket material.

At **606**, the beads (described above) are spread substantially uniformly on a top of the lower layer of blanket material, such that each cell of the perforated layer contains substantially the same amount of beads (plus or minus a certain error, as explained above). The dividing material of perforated layer prevents the beads from leaving the respective cells.

At **608**, the upper layer of blanket material described above is placed on a top of the lower layer, such that the lower layer and the upper layer sandwich the perforated layer and the beads.

At **610**, the lower layer, upper layer, and the perforated layer are sewn together according to a sewing pattern which divides the blanket into a plurality of substantially equal sections. Each section contains substantially a same amount of beads and that the beads in any of the sections are prevented from crossing between sections **100a**. In this manner, a substantially uniform distribution of the beads is maintained over the blanket.

In some embodiments of the present invention, at **612**, the lattice matrix described above is joined to the upper layer of blanket material or lower layer of blanket material.

In some embodiments of the present invention, at **614**, the upper padding layer described above is joined to the top of the upper layer of blanket material. In some embodiments of the present invention, the lower padding layer described above is joined to the bottom of the lower layer of blanket material.

FIG. 7 is a flowchart **700** illustrating a method for manufacturing a weighted blanket, in which the lattice matrix (if present) and the padding layers (if present) are joined to the upper and/or lower layer of blanket material before the lower layer, upper layer, and perforated layer are sewn together, according to some embodiments of the present invention.

The optional steps **612** and **614**, if present, occur before the sewing is performed. In this manner, all the units, including the padding layers and lattice matrix **114** are sewn together at once.

What is claimed is:

1. A weighted blanket, comprising:
 a lower layer of blanket material;
 a perforated layer having a plurality of similarly shaped and sized apertures, each aperture defining a cell, the perforated layer being disposed above the lower layer;
 a plurality of beads distributed over the lower layer;
 an upper layer of blanket material disposed above the lower layer of blanket material, such that the lower level and the upper level sandwich the perforated layer and the beads;
 a lattice matrix disposed parallel to the layers of blanket material and joined to at least one of the layers of blanket material, the lattice comprising a pattern of shaped holes alternating with similarly shaped and sized units of fabric, the fabric being at least semi-rigid, such that lattice matrix is configured to be flexible while retaining a shape of the blanket,
 wherein the lower layer, the upper layer, and the perforated layer are sewn together in a sewing pattern that divides the weighted blanket into a plurality of substantially equal sections, such that beads in any of the sections are prevented from crossing into any other one of the sections; and
 wherein prior to the sewing of the lower layer, the upper layer, and the perforated layer, the beads are distributed substantially uniformly over the lower layer of blanket material such that each cell contains substantially a same number of beads and the perforated layer prevents the beads from leaving the respective cell, thereby ensuring that once the lower layer, the upper layer, and the perforated layer are sewn together, each section contains substantially a same amount of beads, thereby ensuring a substantially uniform distribution of beads over the blanket.
2. The blanket of claim 1, comprising at least one of: an upper padding layer disposed above the upper layer of blanket material, and a lower padding layer is disposed below the lower layer of blanket material.
3. The blanket of claim 2, comprising at least one tie loop joined to at least one edge of the upper padding layer or the lower padding layer and being configured to attach to an external structure.
4. The blanket of claim 1, wherein the sections are rectangular or square.

5. The blanket of claim 2, wherein the upper padding layer and/or the lower padding layer comprises preshrunk cotton fabric.

6. The blanket of claim 1, wherein the lower layer of blanket material and/or the upper layer of blanket material comprises polyfill.

7. The blanket of claim 1, wherein the cells of the perforated layer are honeycomb shaped.

8. The blanket of claim 1, wherein the perforated layer comprises elastic fabric.

9. A method for manufacturing a blanket, comprising:
 providing a lower layer of blanket material as a foundation;

laying the lower layer of blanket material horizontally;
 placing a perforated layer on the lower layer, the perforated layer having a plurality of similarly shaped and sized apertures, each aperture defining a cell, above the lower layer;

spreading a plurality of beads substantially uniformly on a top of the lower layer with the cells above the lower blanket layer, such that each cell contains substantially a same amount of beads, the perforated layer preventing the beads from leaving the respective cells;

placing an upper layer of blanket material on a top of the lower layer such that the lower layer and the upper layer sandwich the perforated layer and the beads;

sewing the lower layer, upper layer, and the perforated layer together according to a sewing pattern which divides the blanket into a plurality of substantially equal sections, such that each section contains substantially a same amount of beads and that the beads in any of the sections are prevented from crossing between sections, thereby maintaining a substantially uniform distribution of the beads over the blanket;

joining a lattice matrix to at least one of the upper layer and the lower layer, such that the lattice matrix is disposed parallel to the upper layer and the lower layer, the lattice matrix having a pattern of a shaped holes alternating with similarly shaped and sized units of fabric, the fabric being at least semi-rigid, such that lattice matrix is configured to be flexible while retaining a shape of the blanket.

10. The method of claim 9, further comprising at least one of:

joining an upper padding layer to a top of the upper layer of blanket material; and

joining a lower padding layer to a bottom of the lower layer of blanket material.

11. The method of claim 10, further comprising joining at least one tie loop to at least one edge of the upper padding layer or of the lower padding layer, the at least one tie loop being configured to attach to an external structure.

12. The method of claim 9, wherein the substantially equal sections are square or rectangular.

13. The method of claim 10, wherein the upper padding layer and/or the lower padding layer comprise preshrunk cotton fabric.

14. The method of claim 9, wherein the lower layer of blanket material and/or the upper layer of blanket material comprise polyfill.

15. The method of claim 9, wherein the cells of the perforated layer that are honeycomb shaped.

16. The method of claim 9, wherein the perforated layer comprises elastic fabric.